



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,866	12/24/2003	Eui-Sun Hong	1568.1082	9364
49455 7590 04/06/2007 STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			EXAMINER WILLIAMS, SHERMANDA L	
			ART UNIT 1745	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/743,866

Applicant(s)

HONG ET AL.

Examiner

Shermanda L. Williams

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-66 is/are pending in the application.
- 4a) Of the above claim(s) 17-66 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12/03, 3/04, 8/04, 10/04, 3/05, 11/06.

DETAILED ACTION

Response to Amendment

This office Action is responsive to the Amendment After Non-Final Rejection filed 1/4/2007. Claims 1-66 are pending. Claims 17 –66 have been withdrawn. Claim 1 has been amended. Claims 11 and 12 have been canceled.

Election/Restrictions

Applicant's election with traverse of Group I Claims 1-16 in the reply filed on 9/14/2006 is acknowledged. The traversal is on the ground(s) that Examiner has not shown that there would be a serious burden for the Examiner to examine all of the claims of the application. This is not found persuasive because due to the fact that these inventions are independent or distinct. These inventions have acquired a separate status in the art in view of their different classification and the inventions require a different field of search (see MPEP § 808.02). Therefore, restriction for examination purposes as indicated is proper. The requirement is deemed proper and is therefore made FINAL.

1. Claims 17-66 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/14/2006.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements (IDS) submitted as of 12/03, 03/04, 8/04, 10/04, 3/05, 11/06 have been considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 3, 15, and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Moriwaki et al. (US 6,258,480). Moriwaki et al. discloses a battery and a method of manufacturing the given battery. The battery contains a positive electrode, a negative electrode, a separator, and an electrolyte (col. 7 lines 13-17 and 43-46). The battery case is constructed of aluminum or an aluminum alloy and has a nickel layer deposited on the outside or inside face of the battery case (col. 3 lines 58-63). The thickness of the nickel layer is at least 3 to 5 μm but less than 30 μm (col. 11 lines 47-54). The

thickness of the bottom portion of the battery case is 0.5 mm (col. 7 lines 57-62, See claim 20). Moriwaki et al. teaches that it is beneficial to provide a nickel layer containing aluminum having a thickness of up to 30 μ m on the outside of the metal case (col. 11 lines 54-57).

4. Claim 3 is a process-by-product claim. The product produced by the process-by-product claim 3 is the product stated in claim 2. The cited references teach a product that is the same as, or an obvious variant of, the product set forth in claims 2 and 3. Claim 3 is alternatively unpatentable. The product of claim 2 and the product of claim 3 appear to be the same. See MPEP 2113 and *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki et al as applied to claim 1 above, and further in view of Seiji (Japan 60 124351). The disclosure of Moriwaki et al. as discussed above is incorporated herein. Moriwaki et al. does not teach a layer on the outside surface of the battery can that contains copper. Seiji discloses a nonaqueous electrolyte cell having a copper layer on the outside surface of the positive electrode enclosure (See abstract). The reference teaches that the use of nickel or copper on the outside surface of the terminal face reduces the contact resistance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moriwaki et al. to include copper on the outside surface of the battery case to reduce contact resistance as taught by Seiji.

6. Claim 5 is a process-by-product claim. The product produced by the process-by-product claim 5 is the product stated in claim 4. The cited references teach a product that is the same as, or an obvious variant of, the product set forth in claims 4 and 5. Claim 5 is alternatively unpatentable. The product of claim 4 and the product of claim 5 appear to be the same. See MPEP 2113 and *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983).

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Moriwaki et al.* as applied to claim 1 above, and further in view of *Morishita et al.* (US 5,976,729). The disclosure of *Moriwaki et al.* as discussed above is incorporated herein. *Moriwaki et al.* does not teach connection of the safety device to the cell via welding. *Morishita et al.* discloses a cell with a reliable protective circuit or safety device. The bottom surface of the battery can is welded to a first lead plate and the first lead plate is welded via resistance welding to a second lead plate for connection to the battery (col. 1 lines 54-61; col. 2 lines 59-63). Therefore, the protective circuit or safety device is connected to the battery. The first lead plate may be constructed of nickel or a nickel alloy (col. 2 lines 24-26). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the cell of *Moriwaki et al.* connect the safety device of *Morishita et al.* to the cell via a welding method to ensure proper protection of the cell during abnormal operation.

8. Claim 7 is a process-by-product claim. The product produced by the process-by-product claim 7 is the product stated in claim 6. The cited references teach a product that is the same as, or an obvious variant of, the product set forth in claim 7.

Art Unit: 1745

Claim is alternatively unpatentable. The product of claim 6 and the product of claim 7 appear to be the same. See MPEP 2113 and *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)

9. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Moriwaki et al.* in view of *Morishita et al.* as applied to claim 6 above, and further in view of *Seiji*. Additionally, datasheets for copper and copper alloys have been cited as evidence as discussed below. The disclosure of *Moriwaki et al.* in view of *Morishita et al.* as discussed above are incorporated herein. *Moriwaki et al.* in view of *Morishita et al.* does not teach an outside layer comprised of a first material and a lead connected thereto comprised of a second material having a melting point different from the layer material by 500 °C or 200°C or less. *Morishita* discloses that a two-layer lead is attached to the bottom surface of the battery. The first layer of the lead is aluminum or an aluminum alloy and the second layer being nickel or a nickel-plated iron, nickel-plated stainless, or nickel-plated copper (col. 2 lines 33-36; col. 3 lines 18-20). *Moriwaki et al.* in view of *Morishita et al.* does not explicitly teach that the melting point of the materials differ by 500°C or less or that they differ by 200°C or less. *Seiji* teaches a nonaqueous electrolyte cell having a copper layer on the outside surface of the positive electrode enclosure or can (See abstract). *Seiji* teaches that the use of nickel or copper on the outside surface of the terminal face reduces the contact resistance. A lead constructed of a copper-nickel alloy has a melting point of 1170 °C (Copper & Alloys datasheet, page 3). The copper outside layer of the battery can has a melting point of 1083 (chemical Elements Basic Information-Copper). The melting point of the

Art Unit: 1745

battery can outside layer and the lead material differ by 200 °C or less. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the battery can outside layer of Moriwaki et al. to use copper in the construction of the battery can as taught by Seiji to reduce the contact resistance. The melting point of Copper differs by 500 °C, 200 °C, or less from the melting point of the lead construction material, a copper-nickel alloy taught by Morishita et al. The proper selection of the construction materials in contact in the battery eliminates the adverse effects such as corrosion that result from joining dissimilar metals.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki et al. in view of Seiji as applied to claim 4 above, and further in view of Morishita. The disclosure of Moriwaki et al. in view of Seiji as discussed above is incorporated herein. Moriwaki et al. in view of Seiji does not teach a lead unit connected to a safety device. Morishita discloses a cell with a reliable protective circuit or safety device having leads connecting the battery and the associated protective circuit or safety device (col. 1 lines 54-61; col. 2 lines 59-63). It is well known in the art that soldering is a common technique used to join two metals and has therefore has not been given patentable weight. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Moriwaki et al. in view of Seiji et al. to include an electrically connected safety device for the battery for cell protection as taught by Morishita et al.

11. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriwaki et al as applied to claim 1 above, and further in view of Shibata et al. (EP 0 899 799 A2). The disclosure of Moriwaki et al. as discussed above is incorporated

Art Unit: 1745

herein. Moriwaki et al. does not teach a metal layer between the layer and the outer surface of the can having a first material selected from Zn, Sn, Fe, and Cr.

12. Shibata discloses a jar can for a secondary battery. The bottom surface of the battery can consist of multiple layers. Layer 1 is the aluminum or aluminum alloy of the battery can bottom surface. Layer 2 is the layer adjacent to the exterior to the bottom of the can and is constructed of iron or a ferrous alloy. Layer 3 is the layer adjacent to the exterior surface of the iron layer and it is constructed of nickel (paragraphs 18- 23). The iron layer maintains the stiffness or structural strength of the can and the use of aluminum reduces the weight of the battery can (paragraphs 19-21). The reference does not explicitly state that the material in layer 1 is the same as the material in layer 3. The aluminum alloy of layer 1 may contain nickel as a common material. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Moriwaki et al. to include iron as an internal layer of the bottom of the battery can to ensure the structural strength of the can is maintained as taught by Shibata et al.

Response to Arguments

Applicant's arguments with respect to claims 1-10 and 13-16 have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

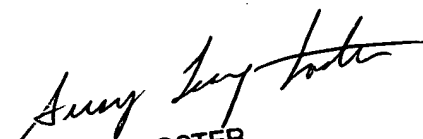
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shermanda L. Williams whose telephone number is (571) 272-8915. The examiner can normally be reached on Mon.-Thurs. 7 AM - 4:30 PM and alternating Friday.

Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


SUSYTSANG-FOSTER
PRIMARY EXAMINER